relatively high values for an endemic species and that yellow-flowered subspecies is the more genetically diverse. Observations of pollinator differences between the two subspecies reveal that both are visited by hopline monkey beetles (*Eriesthes vulpine*), while honey bees (*Apis mellifera*) are restricted to the yellow subspecies. This divergence of vectors impacts heavily on the reproductive success of the respective subspecies. These data need to be incorporated in conservation management of the species.

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A re-evaluation of floral nectar properties in bird-pollinated plants

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Considerable attention has been paid to a supposed dichotomy in floral nectar traits between hummingbird and passerine bird pollination systems. Here we argue that a more useful distinction at the global scale is between specialized and generalized bird pollination systems. In Africa, where all flower-feeding birds are passerines, flowers adapted for sunbirds which are specialized nectarivores have nectar which is very similar to that of hummingbird flowers in terms of nectar volume, concentration and sucrose content. By contrast, in Africa and elsewhere, flowers adapted for pollination by occasional nectarivores are characterized by large volumes of extremely dilute nectar with very low sucrose content. Thus the evolution of nectar volume, sugar concentration and sugar composition may depend less on whether bird pollinators are hummingbirds or passerines, and more on whether they are specialized or occasional nectarivores. We present several hypotheses for the association between nectar properties and specificity in bird pollination systems.

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Down-regulation of neutral invertase activity in sugarcane cell suspension cultures leads to increased sucrose accumulation

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Suspension cultures were used as a model system to investigate sucrose metabolism in four sugarcane (*Saccharum* spp. interspecific hybrids) cell lines transformed with antisense neutral invertase (NI) constructs. Throughout the 14 day growth cycle two cell lines in which the antisense sequence was under the control of a tandem CaMV-35S: maize ubiquitin promoter showed a strong reduction in NI activity, as well as reduced hexose and increased sucrose concentrations in comparison to the control line. In lines where the antisense NI sequence was under the control of the weaker CaMV-35S promoter alone, changes in enzyme activity and sugar concentrations were intermediate to those of the more strongly inhibited lines and the control. In comparison to the control line, a higher sucrose to hexose ratio, i.e. increased purity, was obtained in all the lines with reduced NI activity. These lines also showed a decrease in the in vivo rate of sucrose hydrolysis, suggesting that flux through the 'futile cycle' of sucrose breakdown and re-synthesis was minimised in transgenic tissues. Differences between the transgenic cultures and the control were most pronounced during the early stages of the growth cycle and tapered off as the cultures matured. The transgenic cultures displayed severely impaired growth characteristics suggesting that although decreased NI activity may increase sucrose content, the growth rate of the cells was retarded due to a reduced availability of hexoses for respiration.

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Road verges: Corridors for plant invasions — A spatial hierarchical approach

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Inhabited areas are often sources from which invasive species disperse. Road verges have been suggested as corridors facilitating this dispersal, as disturbed habitats are swiftly colonised by problem species. We therefore hypothesized that (i) houses and urban areas are sources from which problem plants disperse, and that (ii) verges act as corridors for the dispersal of problem plant species. To test these hypotheses a spatial hierarchical approach was used as ecological processes vary across spatial scales. We sampled presence and cover of problem plants in 20 plots per road at 5 km intervals for four roads, nested within three city-centred localities ($n=240$ plots). Roads started off from Beaufort West, Prieska, and Middelburg; South African transit cities with no other major urban areas within a radius of 200 km. We also mapped permanent structures (e.g., houses and train